

TOTAL SCORE _____

MC _____

EXE 1 _____

EXE 2 _____

EXE 3 _____

Econ 002- INTRO MACRO Prof. Luca Bossi December 18, 2014

FINAL EXAM -SUGGESTED SOLUTIONS-

My signature below certifies that I have complied with the University of Pennsylvania's Code of Academic Integrity in completing this examination. In particular, I declare that I have not used a graphing calculator to complete this exam, nor notes and any material.

Student Name (printed)

PennID

Signature

Date

Your TA Name (printed)

INSTRUCTIONS

The exam is closed book. It is composed of 40 multiple choice questions and three exercises. Unless stated otherwise, all multiple choice questions are worth 1.5 points (total is 60 points for the multiple choice part). You can detach the answer sheet for the MC part at the end of the exam if this is more comfortable for you. If that is the case, be sure to put your name on it and to tell your TA to staple it back to the exam when finished. If you do not fill in the MC part on time and request extra time at the end of the exam to write the answers up, a proctor will take your name and you will receive a penalty of 5 points. **ANSWER ALL QUESTIONS.**

TOTAL POINTS = 100. TOTAL TIME = 120 minutes

Provide your answers on the exam sheet directly. Read all questions very carefully. Write legibly.

EXAM TAKING POLICY

If you need to use the restroom, raise your hand and wait for the proctor to come to you. Only one person can be out of the examination room at a time, and the proctor will hold onto your exam papers while you are out at the restroom.

FOR THE DURATION OF THE EXAM, AND WITH THE EXCEPTION OF YOUR ALLOWED SCIENTIFIC CALCULATOR, YOU HAVE TO TURN OFF EVERYTHING ELSE THAT HAS A POWER BUTTON. NO CELL PHONES. NO BOOKS. NO NOTES. NO HELP SHEETS. NO TALKING TO EACH OTHER. YOU CANNOT CONNECT TO THE INTERNET.

NO ASKING THE PROCTORS ANY QUESTION OR HELP TO SOLVE THE EXAM.

WRITE IN PENCIL OR IN PEN AS YOU LIKE, BUT IF YOU WRITE IN PENCIL THERE IS NO POSSIBILITY FOR RE-GRADING. PLEASE WRITE YOUR NAME ON THE FIRST PAGE OF THE EXAM AND ON THE MC BUBBLE PAGE. PLEASE FOLLOW THE INSTRUCTIONS AS TO HOW TO SUBMIT YOUR EXAM AT THE END OF THE 2 HOURS.

PLEASE DO NOT START THIS EXAM UNTIL INSTRUCTED TO DO SO.

GOOD LUCK!

EXERCISE I (15 points total)

Consider the Economy of Shakeitoff for which you have the following Data:

	Produced and Consumed		Imported and Consumed		Produced and Consumed		Produced and Exported	
	Cherries		Pistachios		Figs		Hazelnuts	
Year	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity
2012	5	10	5	12	1	12	1	20
2013	3	12	7	11	3	25	3	12
2014	4	14	6	15	2	14	4	21

The money demand function for the Economy of Shakeitoff is given by:

$$M^D = 200 * \left(\frac{P}{100}\right)^2$$

Where P is a price index.

- a) **(6 POINTS)** Complete the table below. Show the general formulas that you use for your computations so that all your numbers can be justified. Use 2 decimals for your computations.

Base Year: 2013				
Compute Money demand using the CPI				
Typical Market Basket: 2 units of every RELEVANT good				
Year	Cost of Basket	CPI	Inflation	Money Demand
2012				
2013				
2014				

Base Year: 2013				
Compute Money demand using the CPI				
Typical Market Basket: 2 units of every RELEVANT good				
Year	Cost of Basket	CPI	Inflation	Money Demand
2012	22	84.62	NA	143.20
2013	26	100.00	18.18%	200
2014	24	92.31	-7.69%	170.41

You needed to use only Cherries, Pistachios and Figs for computing the cost of the basket because these are the only consumed goods.

You needed to report the relevant general formulas for basket cost, CPI and Inflation.

- b) **(9 POINTS)** Complete the table below. Show the general formulas that you use for your computations so that all your numbers can be justified. Use 2 decimals for your computations.

Base Year: 2013						
Re-compute Money demand using the GDP Deflator						
Year	Real GDP	Nominal GDP	GDP Deflator	Money Demand	Velocity	Money Growth
2012						
2013						
2014						

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Base Year: 2013						
Re-compute Money demand using the GDP Deflator						
Year	Real GDP	Nominal GDP	GDP Deflator	Money Demand	Velocity	Money Growth
2012	126	82	65.08	84.71	0.97	NA
2013	147	147	100	200	0.74	136.11%
2014	147	168	114.29	261.22	0.64	30.61%

You needed to use only Cherries, Hazelnuts and Figs for computing the GDP figures because these are the relevant produced goods.

You needed to report the general formulas for NGDP, RGDP, GDPD.

Also you needed to recall that in equilibrium Money Demand is equal to Money Supply. So that's how you would find M from the quantity equation $MV = PY$

EXERCISE II (12 points total)

Imagine that country A produces cars at price P_A and country B produces cars at price P_B . Both cars have the same quality. The nominal exchange rate is such that for one unit of currency of country A you get E units of country B currency. Cars are the only goods produced by those countries.

Moving one car from country A to country B costs t_A units of country A currency. Moving one car from country B to country A costs t_B units of country B currency. Traveling across countries without moving cars is free.

a) (3 POINTS) Assume $t_A = t_B = 0$, so no transportation costs. Write down and briefly explain the formula for the real exchange rate. This formula establishes a relationship between the real exchange rate (e) and the nominal exchange rate (E) and the price in country A and the price in country B. Be precise.

b) (3 POINTS) Assume $t_A = t_B = 0$, so no transportation costs. What should the nominal exchange rate be according to the Purchasing Power Parity? What does the Purchasing Power Parity (PPP) theory implies for both nominal and real exchange rates in this case according to this formula?

c) (6 POINTS) Now assume $t_A > 0$ and $t_B > 0$. Imagine a person that lives in country A has to decide whether to buy a car from country A or country B. Find the condition on the nominal exchange rate that makes that individual prefer to buy a car in country A rather than going to country B and come back with a car bought there. Find the condition on the nominal exchange rate that makes an individual living in country B prefer to buy a car in country B rather than going to country A and come back with a car bought there.

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Answers:

a) The formula is given by $e = \frac{P_A E}{P_B}$

Since you are told that the nominal exchange rate is such that for one unit of currency of country A you get E units of country B currency, having the prices inverted in the formula (flipping P_B with P_A) is a mistake. The real exchange rate e measures the number of country B cars that you can get for one country A car.

b) PPP implies that real exchange rate is equal to 1: $e = 1$. It follows from the formula of part a) that the nominal exchange rate is equal to the ratio of the country B price to the country A price: $E = \frac{P_B}{P_A}$.

c) For a Person that lives in country A:

Buying a car in country A implies paying P_A

Buying a car in country B and bringing it back to A implies paying $P_B + t_B$. Translating this amount into country A currency: $\frac{P_B + t_B}{E}$.

So a citizen of country A would buy a car in country A if and only if:

$$P_A < \frac{P_B + t_B}{E}$$

This implies:

$$E < \frac{P_B + t_B}{P_A}$$

For a Person that lives in country B:

Buying a car in country B implies paying P_B

Buying a car in country A and bringing it back to B implies paying $P_A + t_A$. Translating this amount into country B currency: $(P_A + t_A) * E$

So a citizen of country B would buy a car in country B if and only if:

$$P_B < (P_A + t_A) * E$$

This implies:

$$E > \frac{P_B}{P_A + t_A}$$

EXERCISE III (13 points total)

Consider the Crossfitland economy with the following characteristics:

Period	Capital	Adult Population	Labor Force	LFPR	Natural Rate of Unemployment
0	19	40	20	50%	5%

Assume that the production function is given by the Cobb-Douglas expression

$$Y_t = A_t F(K_t, L_t) = K_t^{0.3} L_t^{0.7}$$

Also you know that in Crossfitland

$$\text{LRAS: } Y_{t,N} = A_t F(K_t, L_{t,N})$$

Where

$L_{t,N}$ = number of workers when the economy is at the natural rate of unemployment

$Y_{t,N}$ = natural rate of output

Note: changes in π_t do not affect $Y_{t,N}$, $L_{t,N}$ hence LRAS is vertical.

$$\text{SRAS: } \pi_t = \pi_t^E + \lambda(Y_t - Y_{t,N})$$

Where:

π_t = actual inflation at time t

π_t^E = inflation expectations at time t

Y_t = actual level of output at time t.

λ = slope of SRAS

$$\text{AD: } \pi_t = (D_t + \pi_t^T) - \kappa Y_t$$

Where:

D_t = shifter of the IS curve (the part of C, I, G and NCO that does not depend on r and Y)

π_t^T = the central bank's target for inflation

κ = the slope of the AD curve.

Let's adopt the following convention for subscripts:

- When a variable comes with a 0 subscript, it means we are in the initial long-run equilibrium.
- When a variable comes with a 1, 2, 3, etc. subscripts, it means we are in the short-run equilibrium transition toward new long-run equilibrium (as inflation expectations, π_t^E , start to adjust).
- When a variable comes with a NLR subscript, it means we are in the new long-run equilibrium.

Let $D_t = 0.19$ always, $\kappa = 0.01$, $\lambda = 0.02$, $\pi_0^T = 0.05$

a) (4 POINTS) Find the initial long run equilibrium (year 0).

In the Long Run equilibrium we know that all three curves must intersect, hence:

$$\text{AD} = \text{LRAS} = \text{SRAS}$$

We need to find $Y_{0,N}$. When the economy is at the natural rate of unemployment, there is 1 unemployed person (5% of labor force which is 20). This means that there are 19 people working (95% of labor force). Hence from the Cobb-Douglas production function: $Y_{0,N} = 19^{0.3} 19^{0.7} = 19$. This implies that $Y_{0,N} = 19$ represents the LRAS curve.

Since the level of output at time 0 is the same as the natural level of output because it is the LRAS that pins down this variable in the initial long run equilibrium, $Y_0 = Y_{0,N} = 19$.

Plugging this finding into the AD:

$$\pi_0 = D_0 + \pi_0^T - \kappa Y_0 = (0.19 + 0.05) - 0.01 * 19 = 0.05$$

And in the SRAS

$$\pi_0 = \pi_0^E = 0.05$$

b) (3 POINTS) Assume from now on that agents form their expectations on prices following this rule $\pi_t^E = \frac{1}{2}\pi_{t-1} + \frac{1}{2}\pi_t^T$ and that the FED changes permanently its inflation target because the FED wants to decrease inflation: $\pi_1^T = \pi_2^T = \pi_{NLR}^T = 0.02$. Compute the short run equilibrium immediately after the shock (Period 1). Use 4 decimals for your computations.

In the Short Run equilibrium a revision of the FED target inflation moves the AD and creates a shock that brings the economy to deviate from the long run equilibrium.

We know that in the Short run equilibrium it must be the case that only two curves must intersect to determine inflation and output, hence:

AD = SRAS

$$\pi_t = \pi_t^E + \lambda(Y_t - Y_{t,N})$$

$$\pi_t = (D_t + \pi_t^T) - \kappa Y_t$$

Solving for inflation and output in the short run equilibrium immediately after the shock yields:

$$\pi_1 = (D_1 + \pi_1^T) - \kappa Y_1$$

$$Y_1 = \frac{D_1 + \pi_1^T - \pi_1^E + \lambda Y_{1,N}}{\lambda + \kappa}$$

A couple of important things to notice: the fact that the FED has changed the inflation targets, does not affect the LRAS. This is important to keep in mind because it implies that the switch in inflation target does not change the natural rate of output. Hence $Y_{1,N} = Y_{0,N} = 19$.

The second important point is a bit more subtle. Immediately after the FED decides to lower π_t^T , expectations do start to adjust yet because we are told that $\pi_t^E = \frac{1}{2}\pi_{t-1} + \frac{1}{2}\pi_t^T$ and so $\pi_1^E = \frac{1}{2}\pi_0 + \frac{1}{2}\pi_1^T = 0.5*0.05+0.05*0.02 = 0.035$

Inserting all this info into the two formulas above:

$$Y_1 = \frac{0.19 + 0.02 - 0.035 + 0.02 * 19}{0.02 + 0.01} = 18.5$$

$$\pi_1 = (0.19 + 0.02) - 0.01 * 18.5 = 0.025$$

c) (3 POINTS) Compute the second short run equilibrium after the shock (Period 2). Use 4 decimals for your computations.

In period 2 the expectations of inflation adjust down even further because individuals and firms believe in the new FED plan. Formally since we know that $\pi_t^E = \frac{1}{2}\pi_{t-1} + \frac{1}{2}\pi_t^T$ and so $\pi_2^E = \frac{1}{2}\pi_1 + \frac{1}{2}\pi_2^T = 0.5 * 0.025 + 0.5 * 0.02 = 0.0225$.

in the Short run equilibrium it must be the case that only two curves must intersect to determine inflation and output, hence:

AD = SRAS

This equilibrium needs to take into consideration the adjustment in inflation expectations.

$$Y_2 = \frac{D_2 + \pi_2^T - \pi_2^E + \lambda Y_{2,N}}{\lambda + \kappa} = \frac{0.19 + 0.02 - 0.0225 + 0.02 * 19}{0.02 + 0.01} = 18.9167$$

$$\pi_2 = (D_2 + \pi_2^T) - \kappa Y_2 = (0.19 + 0.02) - 0.01 * 18.9167 = 0.0208$$

Note that during the transition, inflation and expectations about inflation fall and output increases. This is because the SRAS is shifting down and we are moving along the AD curve.

d) (3 POINTS) Compute the new long run equilibrium.

In the Long Run equilibrium we know that all three curves must intersect, hence:

AD = LRAS = SRAS

Once again the new inflation target does not affect the natural rate of output and hence, the LRAS is fixed at 19. This is important to keep in mind because it implies that the switch in inflation target does not change the natural rate of output. Hence $Y_{NLR,N} = Y_{0,N} = 19$.

Since the level of output in the new long run equilibrium is the same as the natural level of output because it is the LRAS that pins down this variable in the new long run equilibrium, $Y_{NLR} = Y_{NLR,N} = 19$.

Plugging this finding into the AD:

$$\pi_{NLR} = D_{NLR} + \pi_{NLR}^T - \kappa Y_{NLR} = (0.19 + 0.02) - 0.01 * 19 = 0.02$$

And in the SRAS

$$\pi_{NLR} = \pi_{NLR}^E = 0.02$$

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MULTIPLE CHOICE QUESTIONS

Identify the letter of the choice that best completes the statement or answers the question. Fill in the

bubble with your answer in the answer sheet for the MC provided on the last page of the exam.

- 1)** Suppose the economy is in long-run equilibrium. If there is a sharp decline in the stock market combined with a significant increase in immigration of skilled workers, then in the short run,
- a. real GDP will rise and the price level might rise, fall, or stay the same. In the long-run, real GDP will rise and the price level might rise, fall, or stay the same.
 - b. the price level will fall, and real GDP might rise, fall, or stay the same. In the long-run, real GDP and the price level will be unaffected.
 - c. the price level will rise, and real GDP might rise, fall, or stay the same. In the long run, real GDP will rise and the price level will fall.
 - d. **the price level will fall, and real GDP might rise, fall, or stay the same. In the long run, real GDP will rise and the price level will fall.**
- 2)** Suppose the economy is in long-run equilibrium. If there is a sharp increase in the minimum wage as well as an increase in pessimism about future business conditions, then we would expect that in the short-run,
- a. real GDP will rise and the price level might rise, fall, or stay the same.
 - b. **real GDP will fall and the price level might rise, fall, or stay the same.**
 - c. the price level will rise, and real GDP might rise, fall, or stay the same.
 - d. the price level will fall, and real GDP might rise, fall, or stay the same.
- 3)** If output is above its natural rate, then according to sticky-wage theory
- a. workers and firms will strike bargains for higher wages. This increase in wages shifts the short-run aggregate supply curve right.
 - b. **workers and firms will strike bargains for higher wages. This increase in wages shifts the short-run aggregate supply curve left.**
 - c. workers and firms will strike bargains for lower wages. This decrease in wages shifts the short-run aggregate supply curve right.
 - d. workers and firms will strike bargains for lower wages. This decrease in wages shifts the short-run aggregate supply curve left.
- 4)** Imagine an economy in which: (1) pieces of paper called yollars are the only thing that buyers give to sellers when they buy goods and services, so it would be common to use, say, 50 yollars to buy a pair of shoes; (2) prices are posted in terms of yardsticks, so you might walk into a grocery store and see that, today, an apple is worth 2 yardsticks; and (3) yardsticks disintegrate overnight, so no yardstick has any value for more than 24 hours. In this economy,
- a. the yardstick is a medium of exchange but it cannot serve as a unit of account.
 - b. **the yardstick is a unit of account but it cannot serve as a store of value.**
 - c. the yardstick is a medium of exchange but it cannot serve as a store of value, and the yollar is a unit of account.
 - d. the yollar is a unit of account, but it is not a medium of exchange and it is not a liquid asset.
- 5)** Traditionally, when the Federal Reserve sells assets from its portfolio to the public with the intent of changing the money supply,
- a. those assets are government bonds and the Fed's reason for selling them is to increase the money supply.
 - b. **those assets are government bonds and the Fed's reason for selling them is to decrease the money supply.**
 - c. those assets are items that are included in M2 and the Fed's reason for selling them is to increase the money supply.
 - d. those assets are items that are included in M2 and the Fed's reason for selling them is to decrease the money supply.
- 6)** Which of the following is most likely to result if foreigners decide to withdraw the funds that they have loaned to the United States?

- a. the dollar will appreciate.
- b. U.S. net capital outflow will fall.
- c. U.S. domestic investment will rise.
- d. **U.S. net exports will rise.**

7) In 2002, the United States placed higher tariffs on imports of steel. According to the open-economy macroeconomic model this policy should have

- a. reduced imports into the United States and made U.S. net exports rise.
- b. reduced imports into the United States and made the net supply of dollars in the foreign exchange market shift right.
- c. **reduced imports of steel into the United States, but reduced U.S. exports of other goods by an equal amount.**
- d. reduced imports of steel into the United States and increased U.S. exports of other goods by an equal amount.

8) Which of the following contains a list only of things that decrease when the budget deficit of the U.S. increases?

- a. **U.S. net exports, U.S. domestic investment, U.S. net capital outflow**
- b. U.S. supply of loanable funds, U.S. interest rates, U.S. domestic investment
- c. U.S. imports, U.S. interest rates, the real exchange rate of the dollar
- d. None of the above is correct.

9) If U.S. residents want to buy more foreign bonds, then in the market for foreign-currency exchange the exchange rate

- a. and the quantity of dollars traded rises.
- b. rises and the quantity of dollars traded falls.
- c. **falls and the quantity of dollars traded rises.**
- d. and the quantity of dollars traded falls.

10) Suppose the real exchange rate is such that the market for foreign-currency exchange has a surplus. This surplus will lead to

- a. an appreciation of the dollar, an increase in U.S. net exports, and so an increase in the quantity of dollars demanded in the foreign exchange market.
- b. an appreciation of the dollar, a decrease in U.S. net exports, and so a decrease in the quantity of dollars demanded in the foreign exchange market.
- c. **a depreciation of the dollar, an increase in U.S. net exports, and so an increase in the quantity of dollars demanded in the foreign exchange market.**
- d. a depreciation of the dollar, a decrease in U.S. net exports, and so a decrease in the quantity of dollars demanded in the foreign exchange market.

11) Which of the following could explain a decrease in the equilibrium interest rate and in the equilibrium quantity of loanable funds?

- a. The demand for loanable funds shifted rightward.
- b. **The demand for loanable funds shifted leftward.**
- c. The supply of loanable funds shifted rightward.
- d. The supply of loanable funds shifted leftward.

12) An increase in the saving rate would, other things the same,

- a. increase growth more for a poor country than for a rich country, and raise growth permanently.
- b. **increase growth more for a poor country than for a rich country, but raise growth temporarily.**
- c. increase growth more for a rich country than for a poor country, and raise growth permanently.
- d. increase growth more for a rich country than for a poor country, but raise growth temporarily.

Table 1 -Labor Data for Aridia

Year	2010	2011	2012
Adult population	2000	3000	3200
Number of employed	1400	1300	1600
Number of unemployed	200	600	200

13) Refer to Table 1. The labor force of Aridia in 2010 was

- a. 1400.
- b. 1600.
- c. 1800.
- d. 2000.

14) Refer to Table 1. The unemployment rate of Aridia

- a. increased from 2010 to 2011 and increased from 2011 to 2012.
- b. increased from 2010 to 2011 and decreased from 2011 to 2012.
- c. decreased from 2010 to 2011 and increased from 2011 to 2012.
- d. decreased from 2010 to 2011 and decreased from 2011 to 2012.

15) Refer to Table 1. The labor-force participation rate of Aridia in 2011 was

- a. 43.3%.
- b. 54.2%.
- c. 63.3%.
- d. 68.4%.

16) Over one time horizon or another, Fed policy decisions influence

- a. inflation and employment.
- b. inflation but not employment.
- c. employment but not inflation.
- d. neither inflation nor employment.

17) You bought some shares of stock and, over the next year, the price per share increased by 5 percent, as did the price level. Before taxes, you experienced

- a. both a nominal gain and a real gain, and you paid taxes on the nominal gain.
- b. both a nominal gain and a real gain, and you paid taxes only on the real gain.
- c. a nominal gain, but no real gain, and you paid taxes on the nominal gain.
- d. a nominal gain, but no real gain, and you paid no taxes on the transaction.

18) Suppose the money supply tripled, but at the same time velocity fell by half and real GDP was unchanged. According to the quantity equation the price level

- a. is 1.5 times its old value.
- b. is 3 times its old value.
- c. is 6 times its old value.
- d. is the same as its old value.

19) A bank loans Greg's Ice Cream \$250,000 to remodel a building near campus to use as a new store. On their respective balance sheets, this loan is

- a. a liability for the bank and an asset for Greg's Ice Cream. The loan increases the money supply.
- b. a liability for the bank and an asset for Greg's Ice Cream. The loan does not increase the money supply.
- c. an asset for the bank and a liability for Greg's Ice Cream. The loan increases the money supply.
- d. an asset for the bank and a liability for Greg's Ice Cream. The loan does not increase the money supply.

20) Suppose there is a surplus in the money market.

- a. This could have been created by an increase in the money supply. The value of money will rise.
- b. **This could have been created by an increase in the money supply. The value of money will fall.**
- c. This could have been created by a decrease in the money supply. The value of money will rise.
- d. This could have been created by a decrease in the money supply. The value of money will fall.

21) Marcia has four savings accounts. Which account has the largest balance?

- a. \$100 deposited 1 year ago at an 8 percent interest rate
- b. \$100 deposited 2 years ago at a 4 percent interest rate
- c. \$100 deposited 4 years ago at a 2 percent interest rate
- d. **\$100 deposited 8 years ago at a 1 percent interest rate**

22) All else equal, if there are diminishing returns, then what happens to productivity if both capital and labor increase?

- a. Productivity will definitely fall.
- b. Productivity will definitely be unchanged.
- c. Productivity will definitely rise.
- d. **None of the above are necessarily correct.**

23) Ethel purchased a bag of groceries in 1970 for \$8. She purchased the same bag of groceries in 2006 for \$25. If the price index was 38.8 in 1970 and the price index was 180 in 2006, then what is the price of the 1970 bag of groceries in 2006 dollars?

- a. \$5.39
- b. \$25.00
- c. \$29.11
- d. **\$37.11**

24) Foreign citizens earn more income in Ireland than Irish citizens earn in foreign countries.

- a. Ireland's net factor payments from abroad are positive, and its GDP is larger than its GNP.
- b. Ireland's net factor payments from abroad are positive, and its GNP is larger than its GDP.
- c. **Ireland's net factor payments from abroad are negative, and its GDP is larger than its GNP.**
- d. Ireland's net factor payments from abroad are negative, and its GNP is larger than its GDP.

25) Senator Smith says that in order to help poor countries develop, the United States should: 1. Prevent U.S. corporations from investing in poor countries because they take profits that the poor countries should have; 2. reduce or eliminate subsidies to U.S. producers when poor countries have a comparative advantage producing those goods the U.S. subsidizes; 3. Work to promote political stability in poor countries; and 4. Reduce poor countries reliance on market forces in their economies. How many of these ideas are likely to help poor countries grow?

- a. 1
- b. **2**
- c. 3
- d. 4

26) In 2009, the imaginary nation of Dorados had a population of 8,000 and real GDP of 3,000,000. During the year its real GDP per capita grew by about 2.9%. Which of the following sets of growth rates is approximately consistent with this growth in real GDP?

- a. 2% population growth and 6% real GDP growth
- b. 6% population growth and 2% real GDP growth
- c. **4% population growth and 7% real GDP growth**
- d. 7% population growth and 4% real GDP growth

27) A firm may pay efficiency wages in an attempt to

- a. reduce incentives to shirk.

- b. reduce turnover.
- c. attract a well-qualified pool of applicants.
- d. All of the above are correct.

28) An increase in the price of bread produced domestically will be reflected in

- a. both the GDP deflator and the consumer price index.
- b. neither the GDP deflator nor the consumer price index.
- c. the GDP deflator but not in the consumer price index.
- d. the consumer price index but not in the GDP deflator.

29) If Norway sold more goods and services abroad than it purchased from abroad, then it had

- a. positive net exports which is a trade surplus.
- b. positive net exports which is a trade deficit.
- c. negative net exports which is a trade surplus.
- d. negative net exports which is a trade deficit.

30) Which of the following is not included in either M1 or M2?

- a. U.S. Treasury bills
- b. small time deposits
- c. demand deposits
- d. money market mutual funds

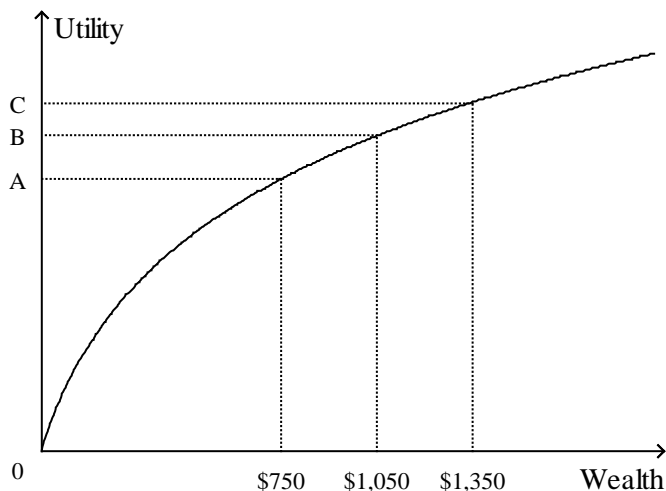
31) During the recent financial crisis velocity decreased. This means that the rate at which money changed hands

- a. decreased. Other things the same, a decrease in velocity decreases the price level.
- b. decreased. Other things the same, a decrease in velocity increases the price level.
- c. increased. Other things the same, an increase in velocity decreases the price level.
- d. increased. Other things the same, an increase in velocity increases the price level.

32) If there is a trade deficit, then

- a. saving is greater than domestic investment and $Y > C + I + G$.
- b. saving is greater than domestic investment and $Y < C + I + G$.
- c. saving is less than domestic investment and $Y > C + I + G$.
- d. saving is less than domestic investment and $Y < C + I + G$.

Figure 1. This figure shows a utility function for Mary Ann.



33) Refer to Figure 1. From the appearance of the utility function, we know that

- a. Mary Ann is risk averse.
- b. Mary Ann gains less satisfaction when her wealth increases by X dollars than she loses in satisfaction when her wealth decreases by X dollars.
- c. the property of diminishing marginal utility applies to Mary Ann.
- d. **All of the above are correct.**

34) Refer to Figure 1. Suppose Mary Ann begins with \$1,050 in wealth. Starting from there,

- a. she would be willing to accept a coin-flip bet that would result in her winning \$300 if the result was “heads” or losing \$300 if the result was “tails.”
- b. the pain of losing \$300 of her wealth would equal the pleasure of adding \$300 to her wealth.
- c. **the pain of losing \$300 of her wealth would exceed the pleasure of adding \$300 to her wealth.**
- d. the pleasure of adding \$300 to her wealth would exceed the pain of losing \$300 of her wealth.

35) If in a closed economy $Y = \$11$ trillion, which of the following combinations would be consistent with national saving of \$2.5 trillion?

- a. **$C = \$8$ trillion, $G = \$0.5$ trillion**
- b. $C = \$6.5$ trillion, $G = \$3$ trillion
- c. $C = \$8.5$ trillion, $G = \$2$ trillion
- d. $C = \$9$ trillion, $G = \$0.5$ trillion

36) If a country has \$2.4 billion of net exports and purchases \$4.8 billion of goods and services from foreign countries, then it has

- a. **\$7.2 billion of exports and \$4.8 billion of imports.**
- b. \$7.2 billion of imports and \$4.8 billion of exports.
- c. \$4.8 billion of exports and \$2.4 billion of imports.
- d. \$4.8 billion of imports and \$2.4 billion of exports.

37) Suppose the price of a gallon of ice cream rises from \$4 to \$5 and the price of a can of coffee rises from \$2 to \$2.50. If the CPI rises from 150 to 177, then people likely will buy

- a. more ice cream and more coffee.
- b. more ice cream and less coffee.
- c. less ice cream and more coffee.
- d. **less ice cream and less coffee.**

38) Sam has no job but keeps applying to get a job with a business that is unionized. He is qualified and he finds the pay attractive, but the firm is not hiring. Sam is

- a. **structurally unemployed. Structural unemployment exists even in the long run.**
- b. structurally unemployed. Structural unemployment does not exist in the long run.
- c. frictionally unemployed. Frictional unemployment exists even in the long run.
- d. frictionally unemployed. Frictional unemployment does not exist in the long run.

39) (3 POINTS) During the class of 11/19/2014, Professor Bossi used a particular adjective to describe the “Buy only American campaign” policy subsequently analyzed in class with the tools of the open economy model. He told repeatedly students in attendance to write down that adjective as students would be tested on it. Professor Bossi did not receive ANY course absence report for that class from any student. The term used by Professor Bossi to qualify the “Buy only American” policy was:

- a. Questionable.
- b. Ineffective.
- c. **Extravagant.**
- d. Counterproductive.

YOUR NAME: _____

YOUR TA's NAME: _____

**FILL IN THE BUBBLE WITH THE LETTER OF YOUR CHOICE FOR THE MULTIPLE CHOICE QUESTIONS
ONLY THIS PAGE WILL BE GRADED FOR THE MC PART.**

- | | | | | |
|-----|-----|-----|-----|-----|
| 1. | (A) | (B) | (C) | (D) |
| 2. | (A) | (B) | (C) | (D) |
| 3. | (A) | (B) | (C) | (D) |
| 4. | (A) | (B) | (C) | (D) |
| 5. | (A) | (B) | (C) | (D) |
| 6. | (A) | (B) | (C) | (D) |
| 7. | (A) | (B) | (C) | (D) |
| 8. | (A) | (B) | (C) | (D) |
| 9. | (A) | (B) | (C) | (D) |
| 10. | (A) | (B) | (C) | (D) |
| 11. | (A) | (B) | (C) | (D) |
| 12. | (A) | (B) | (C) | (D) |
| 13. | (A) | (B) | (C) | (D) |
| 14. | (A) | (B) | (C) | (D) |
| 15. | (A) | (B) | (C) | (D) |
| 16. | (A) | (B) | (C) | (D) |
| 17. | (A) | (B) | (C) | (D) |
| 18. | (A) | (B) | (C) | (D) |
| 19. | (A) | (B) | (C) | (D) |
| 20. | (A) | (B) | (C) | (D) |
| 21. | (A) | (B) | (C) | (D) |
| 22. | (A) | (B) | (C) | (D) |
| 23. | (A) | (B) | (C) | (D) |
| 24. | (A) | (B) | (C) | (D) |
| 25. | (A) | (B) | (C) | (D) |
| 26. | (A) | (B) | (C) | (D) |
| 27. | (A) | (B) | (C) | (D) |
| 28. | (A) | (B) | (C) | (D) |
| 29. | (A) | (B) | (C) | (D) |
| 30. | (A) | (B) | (C) | (D) |
| 31. | (A) | (B) | (C) | (D) |
| 32. | (A) | (B) | (C) | (D) |
| 33. | (A) | (B) | (C) | (D) |
| 34. | (A) | (B) | (C) | (D) |
| 35. | (A) | (B) | (C) | (D) |
| 36. | (A) | (B) | (C) | (D) |
| 37. | (A) | (B) | (C) | (D) |
| 38. | (A) | (B) | (C) | (D) |
| 39. | (A) | (B) | (C) | (D) |